Journal of Research in Medical and Dental Science
2022, Volume 10, Issue 5, Page No: 171-173

Available Online at: www.jrmds.in
eISSN No.2347-2367: pISSN No.2347-2545

Right Sided Supernumerary Kidney with Pyelonephritis: A Rare Presentation

VVSS Sagar[1*], Sourya Acharya[1], Sunil Kumar[1], Amol Bhawane[2], Samarth Shukla[3], Chitturi Venkata Sai Akhil[4], K. B. Harshith Gowda[5]

[1]Department of General Medicine, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

[2]Department of Nephrology, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

[3]Department of Pathology, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

[4]Department of General Paediatrics, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

[5]Department of General Radiodiagnosis, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

ABSTRACT

Renal malformations are one of the most frequent congenital abnormalities. A supernumerary kidney is unusual among these. Due of the abnormality's rarity, the real incidence is uncertain. The first instance was documented in 1965, and there are now less than 100 cases identified. The majority of the time, this ailment is asymptomatic, but when it is, it usually manifests itself in the fourth decade of life. We discuss a case of a 67 years old woman who presented with a right supernumerary kidney with pyelonephritis fused to the native kidney, which is an infrequent occurrence.

Key words: Supernumerary kidney, Pyelonephritis, Congenital anomalies, Fused kidney, Malformation

HOW TO CITE THIS ARTICLE: VVSS Sagar, Sourya Acharya, Sunil Kumar, Amol Bhawane, Samarth Shukla, Chitturi Venkata Sai Akhil4, Harshith Gowda K B, Right Sided Supernumerary Kidney with Pyelonephritis: A Rare Presentation , J Res Med Dent Sci, 2022, 10(5): 171-173.

Corresponding author: VVSS Sagar
E-mail: vvsssagar@gmail.com
Received: 23-Feb-2022, Manuscript No. JRMDS-22-50494;
Editor assigned: 25-Feb-2022, Pre QC No. JRMDS-22-50494 (PQ);
Reviewed: 11-Mar-2022, QC No. JRMDS-22-50494;
Revised: 25-Apr-2022, Manuscript No. JRMDS-22-50494 (R);
Published: 6-May-2022

INTRODUCTION

Urogenital abnormalities are widespread, contributing for 33% of all congenital malformations. The most unusual renal anomaly is a supernumerary kidney, which can be encapsulated, completely distinct from the native kidney or tethered to it by a connective tissue sheath. The supernumerary kidney is generally situated caudally to the same side kidney and is associated with a bifid or less often a double ureter. When there are more than two kidneys, this anatomic variation is considered to exist with the additional kidney having separate collecting system, vascular system, and parenchyma with a discrete capsule. Supernumerary kidneys are often associated with urolithiasis, pyonephrosis or hydronephrosis. Rarely Wilm's tumor and adenocarcinoma may occur [1].

CASE PRESENTATION

A 67 years old female was brought in a drowsy state to the casualty with the complaints of multiple episodes of loose stools, right lower abdominal pain and swelling over bilateral lower limbs since 2 days. Patient has history of 2 episode of high grade fever which was intermittent in nature associated with chills. No history of cough, abdominal pain, vomiting, chest pain, breathlessness, loss of consciousness, headache, neck pain, seizures. No history of systemic hypertension, bronchial asthma, diabetes mellitus, tuberculosis. Patient general condition was poor, febrile with 1020 F, tachycardia of 122/min, blood pressure 100/70 mm of Hg. Bilateral crackles present on auscultation, central nervous system examination revealed drowsy, stuporous, delayed response, normal tone, power 3/5 in all limbs, deep tendon reflexes absent, bilateral plantars extensor [2].

Laboratory investigations suggestive of Hb 6.5, MCV 86.3, WBC count 103800 per cu. mm, platelet count 2,69,000 per cu. mm, urine examination revealed plenty of pus cells, urea 197 mg/dl, creatinine 7.5 mg/dl, sodium 120 mmol/l, potassium 5.5 mmol/l, alkaline phosphate 141 U/L, SGOT

49 U/L, SGPT 19 U/L, total protein 4.3 g/dl, albumin 2.0 g/dl, total bilirubin 1.2 mg/dl. Bone marrow was not done as patient had leukemoid reaction and peripheral smear suggestive of no blast cells, normal basophils, no precursors and only few occasional metamyelocytes and hence did not suspect chronic myeloid leukemia [3].

Neuroimaging such as CT brain without contrast was done suggestive of normal study of brain, no haematoma or oedema. Usg abdomen pelvis was done suggestive of slightly raised bilateral cortical echotexture of both kidneys with maintained corticomedullary differentiation [4]. CT KUB was done suggestive of right sided supernumeraray kidney fused to lower pole of upper native kidney having renal pelvis facing anterolaterally with extensive perinephric fat stranding? Pyelonephritis with bilateral pleural effusion with subsegmental atelectasis and free fluid seen in pelvis (Figures 1A and 1B).

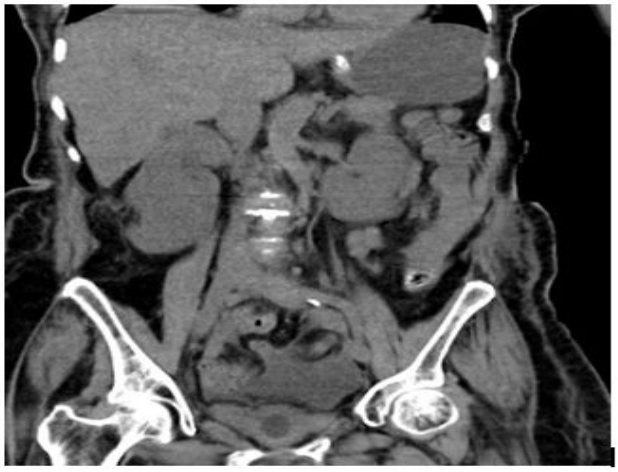

Figure 1A: Showing coronal image of KUB demonstrating fusion of accessory kidney with the right kidney with evidence of perinephric fat stranding.

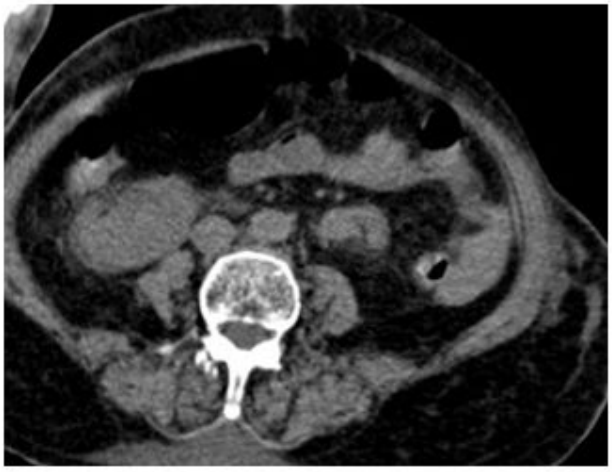

Figure 1B: Showing axial section shows facing of the right sided hilum of kidney anterolaterally with extensive fat stranding.

Patient was started on sustained low efficiency daily dialysis for 3 sessions. Patient was started on inotropes as patient was in shock. Patient was started on furosemide infusion and taken on non-invasive ventilation in view of pulmonary oedema. Patient was started on injectable antibiotics such as meropenem 500 mg thrice a day, linezolid 600 mg twice a day, doxycycline 100 mg twice a day, colistin 2 MIU twice a day [5].

DISCUSSION

The supernumerary kidney is indeed a very atypical congenital defect, with just around 100 instances documented in the literature. The majority of the time, this ailment goes unnoticed, but when it does, it usually shows up around the fourth decade of life. Pain, a palpable abdominal lump, and fever are the most often reported symptoms. Other symptoms such as urinary incontinence may also be present in certain situations. Imaging, such as Computed Tomography (CT), Magnetic Resonance Imaging (MRI), or ultrasonography, is used to make the diagnosis. One additional kidney is found in the majority of cases with supernumerary kidney. The additional kidney is usually located on the same side and caudal to the left kidney and is usually smaller than the original kidney. During the 5^{th}-7^{th} weeks of pregnancy, an abnormal division of the nephrogenic cord into two distinct metanephric blastemas is considered to cause the additional kidney. This procedure results in two kidneys with partially or completely duplicated ureteral buds forming an extra kidney. These can arise when there are two independent collecting systems or when one ureter empties into the other. Supernumerary kidneys have also been identified in conjunction with an ectopic ureter sometimes draining into vaginal canal. Urinary incontinence will be present in these circumstances [6].

There are various hypotheses on how a supernumerary kidney develops: a) ureteral bud bifurcates and penetrates independently into the metanephric blastema which later develops and divide into two kidneys b) two ureteral buds independently penetrates the metanephrogenic blastema and c) linear infarcts cause disintegration of the metanephrogenic blastema [7]. The patient was diagnosed by CT by chance in our situation. In individuals with a fused supernumerary kidney, the duplex kidney should be contemplated. In the duplex kidney, there is whole or partial duplication of the collecting system with a normal parenchyma. A supernumerary kidney has its own vascular and capsule components. On an ultrasound, separating the artery and the ureter may be challenging. In this case, CT is superior to US and is an appropriate imaging modality [8].

Various urogenital (vaginal atresia, horseshoe kidney, ectopic opening of urethra, duplication of urethra) are associated with supernumerary kidney [9]. Other associated defects include imperforate anus, neural tube defects, coarctation of aorta, VSD. In our case, there was

no associated oddity. It is critical to be aware that numerous abnormalities may be associated with these situations and to thorough inspection of the patient is essential to detect further anomalies [10].

CONCLUSION

Supernumerary kidneys are quite uncommon. In two ways, this instance is considerably more peculiar. First, the additional kidney is situated on the right side of the body. Second, fusion to lower pole of native one. There were no associated congenital malformations in our patient. His unexplained right lower quadrant discomfort, on the other hand, might be attributable to an anatomic variance with a documented symptom of pain, fever and vomitings were due to septicaemia evidenced by pyelonephritis in imaging.

REFERENCES

1. Mejia M, Limback J, Ramirez A, et al. A Case of Supernumerary Kidney. Cureus 2018; 10:e3686.
2. Favorito LA, Morais AR. Evaluation of supernumerary kidney with fusion using magnetic resonance image. Int Braz J Urol 2012; 38:428-429.
3. Mustafa M. Bilateral supernumerary kidneys in conjunction with horseshoe anomaly. Saudi J Kidney Dis Transpl 2012; 23:1243-1245.
4. Gonzalvo Perez V, Ramada Benlloch F, Blasco Alfonso JE, et al. Rinon supernumerario con abocamiento de ureter ectopico a vagina asociado a riñón en herradura Supernumerary kidney with ectopic ureteral opening to the vagina associated with horseshoe kidney. Actas Urol Esp 1992; 16:796-798.
5. Oto A, Kerimoglu U, Eskiçorapçi S, et al. Bilateral supernumerary kidney: Imaging findings. JBR-BTR 2002; 85:300-303.
6. Sureka B, Mittal MK, Mittal A, et al. Supernumerary kidneys--a rare anatomic variant. Surg Radiol Anat 2014; 36:199-202.
7. Kusuma V, Hemalata M, Suguna BV, et al. Ectopic supernumerary kidney presenting as inguinal hernia. J Clin Pathol 2005; 58:446.
8. Khalda E, Singh GN, Mandal AK, et al. Unilateral supernumerary kidney with contra lateral hydronephrosis-a rare case report. Australas Med J 2014; 7:213-217.
9. Ogreid PI, Bo O, Løovas J, et al. Traumatic haematuria in supernumerary hydronephrotic kidney. A case report. Scand J Urol Nephrol 1979; 13:127-130.
10. Gao X, Xing Q, Luo X, et al. Right supernumerary kidney with urothelial carcinoma: A case report. Medicine 2020; 99:e22329.